

Appl. No. : 09/864,605
Filed : May 24, 2001

AMENDMENTS TO THE CLAIMS

IN THE CLAIMS

1. through 25. Canceled

26. (Currently Amended) A sampling apparatus for selectively evaluating portions of a wafer, the apparatus comprising:

a first tube that is configured to isolate a portion of a semiconductor wafer;

a second tube that is configured to dispense a liquid onto the isolated portion of the wafer;

transfer tubing that is configured to transfer a portion of the liquid to an analyzer; and

a peristaltic pump configured to direct which directs the liquid in the transfer tubing to the analyzer, such that the analyzer is able to measure as a function of time an etch depth at the isolated portion of the wafer.

27. (Original) The sampling apparatus of Claim 26, wherein the first tube surrounds the second tube.

28. (Original) The sampling apparatus of Claim 26, wherein the liquid comprises an etchant.

29. (Original) The sampling apparatus of Claim 26, wherein the transfer tubing is connected to the first tube.

30. (Original) The sampling apparatus of Claim 26 further comprising a nebulizer that is in communication with the transfer tubing.

31. (Original) The sampling apparatus of Claim 26, wherein the analyzer is an inductively coupled plasma-optical emissions spectrometer.

32. (Original) The sampling apparatus of Claim 26, wherein the analyzer is configured to evaluate the liquid as a function of time.

33. (Original) The sampling apparatus of Claim 26, wherein the analyzer is configured to evaluate the composition of the isolated portion of the wafer at different depths.

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34. (Currently Amended) A test system that evaluates isolated portions of a semiconductor wafer, the testing system comprising:

a sampling apparatus that is configured to dispense a liquid onto an isolated section of a semiconductor wafer, the sampling apparatus further comprising:

an outer tube having an inner wall and an outer wall, the outer tube configured to form ~~that forms~~ a seal between the outer tube and the isolated section of the wafer; and

an inner tube within the outer tube, the inner tube configured to dispense a liquid within the isolated section of the wafer;

transfer tubing comprising a first end and a second end, the first end connected to the outer wall of the outer tube, the second end connected to an analysis system, the transfer tubing further comprising a flexible outer surface wherein the transfer tubing is configured to transfer a portion of the liquid from the sampling apparatus to the analysis system; and

a peristaltic pump in communication with a portion of the flexible outer surface of the transfer tubing, the peristaltic pump configured to direct the liquid in the transfer tubing to the analysis system.

35. (Original) The test system of Claim 34, wherein the outer tube is configured to apply the liquid to the isolated section of the wafer.

36. (Original) The test system of Claim 34, wherein the transfer tubing is PFTE tubing.

37. (Original) The test system of Claim 34, wherein the analysis system comprises a spectrometer.

38. (Original) The test system of Claim 34, wherein the analysis system comprises an inductively coupled plasma mass spectrometer.

39. (Original) The test system of Claim 34, wherein the analysis system comprises a nebulizer.

40. (Original) The test system of Claim 34, wherein the peristaltic pump is configured to apply successive waves to the outer surface of the transfer tubing.

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41. (Currently Amended) A semiconductor testing apparatus comprising:
a sampling apparatus that is configured to dispense a liquid onto an isolated section of a semiconductor wafer;
transfer tubing in communication with the sampling apparatus, the transfer tubing configured to transfer a portion of the liquid from the sampling apparatus;
and
a peristaltic pump in communication with the transfer tubing, the peristaltic pump configured to direct the liquid in the transfer tubing to an analyzer, the analyzer configured to measure as a function of time an etch depth at the isolated section of the wafer.
42. (Original) The semiconductor testing apparatus of Claim 41, wherein the peristaltic pump does not contaminate the liquid.
43. (Original) The semiconductor testing apparatus of Claim 41, wherein the liquid is an etchant.
44. (Original) The semiconductor testing apparatus of Claim 41, wherein the sampling apparatus is configured to seal the isolated section of the wafer from other portions of the wafer.
45. (Original) The semiconductor testing apparatus of Claim 41, wherein the transfer tubing has a flexible outer surface.
46. (Original) The semiconductor testing apparatus of Claim 41, wherein the peristaltic pump applies pressure to the surface of the transfer tubing.
47. (Original) The semiconductor testing apparatus of Claim 41 further comprising a nebulizer that is in communication with the transfer tubing and the analyzer.

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48. (Currently Amended) A semiconductor testing apparatus comprising:
a first means for isolating a portion of a wafer, the first means also for dispensing a liquid onto the isolated portion of the semiconductor wafer;
second means in communication with the first means, the second means for transferring a portion of the liquid to an analysis system, the analysis system configured to measure as a function of time an etch depth at the isolated portion of the wafer; and
peristaltic pumping means for transferring the liquid through the second means.

49. (Previously Presented) The semiconductor testing apparatus of Claim 48, wherein the peristaltic pumping means peristaltically pumps the liquid through the second means.

50. (Original) The semiconductor testing apparatus of Claim 48, wherein the second means is a tube.

51. (Previously Presented) The semiconductor testing apparatus of Claim 48, wherein the analysis system comprises a mass spectrometer.

52. (Previously Presented) The semiconductor testing apparatus of Claim 48, wherein the peristaltic pumping means does not contaminate the liquid.